

## REMARKS

Claims 1, 3, 9, 11, 14 and 20 have been amended in this application, and claims 2, 10, 21 and 23 have been cancelled. In claim 1, the limitation “a first field-oxide stripe formed over a third part of said channel region” has been amended to “a first field-oxide stripe formed over a second part of said channel region” and the limitation “and said channel comprises a first part, a second part and a third part” has been added to claim 1 in order to make claim 1 more clear. In claim 3, “said first and third parts” has been amended to “said first and second parts” according to the amendment of the claim 1. Claim 2 has been combined with claim 1, and then in claim 1, the limitation “a first part of said first gate segment overlaps said first field-oxide stripe” has been amended to “a first end of said first gate segment overlaps said first field-oxide stripe” to show which part of the first gate segment overlaps the first field-oxide stripe. The limitation “said first part of said channel is substantially external to said second part of said channel; and” is added in claim 1 to describe the relationship between the first part and the second part of the channel clearly.

In claim 9, the limitation “a second gate segment formed over a second part of said channel region” has been amended “a second gate segment formed over a third part of said channel region” according to above amendment of the claim 1. Claim 10 has been combined with claim 9, and then in claim 9, the phrase “a first part end of said second gate segment” have been amended to “a first end of said second gate segment”. Therefore, claim 11 has been amended to be dependent on claim 9 because of the combination of claim 9 and claim 10, and above-mentioned amendment of claim 1. In claim 14, the limitation “second sub-channel region being adjacent to said doped region” has been amended to “second sub-channel region being adjacent to said second doped region” in order to depict where the second sub-channel region is really positioned, and the sentence “and said first and said second gate segments form a stack-gate structure” has been deleted because of the alleged confusion of the stack-gate structure.

Claim 21 has been combined with claim 20, and so in claim 20, the limitation “said first gate segment have a first part overlapping a field-oxide extension segment; and said second gate second gate segment have a second part overlapping said field-oxide extension segment” has been amended to “said first gate segment have a first end overlapping a field-oxide extension segment; and said second gate second gate segment have a second end overlapping said field-oxide extension segment”. Besides, claim 23 have been canceled in this application.

Applicants respectfully requests reconsideration in light of the following remarks.

**CLAIM REJECTIONS- 35 U.S.C. SECTION 112, second paragraph**

Claims 1-25 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner is of the opinion that in claims 1, “the first part” is recited in line 10 and “the third part” is recited in line 11 but no “second part” is mentioned, and it is confusing. The Examiner thinks that although “the second part” is recited in claim 11, but claim 1 does not provide any antecedent for a second part of channel.

To review the Claim 1 and the specification, the first part of the channel and the third part of the channel are mentioned in claim 1, but the second part of the channel is not. But according to claim 1, 3, 9, 11, Fig. 5A, Fig. 6A, and the specification, we know that the channel comprises three parts: a first part which is one end of the channel and a first gate segment is formed over, a second part which is middle part of the channel to connect two ends of the channel and a first field-oxide stripe is formed over, and a third part of the channel which is another end of the

channel and a second gate segment can be formed over. Thus, claim 1, 3 and 9 have been amended in order to clearly describe the three parts of the channel. In claim 1, the sentence “and said channel comprises a first part and a second part and a third part” have been added to depict the channel clearly. In claim 1, 3, and 9, “the second part” and “the third part” are replaced by each other in order to march the order which is from the end of the channel to another end of the channel. The three parts of the channel are depicted clearly by above mentioned amendment to make the claims of the present invention clear and easy to be understood and to fulfill the requirement of 35 U.S.C. 112, second paragraph.

The Examiner is of the opinion that in claim 14, line 5-6, “said doped region “ has unclear antecedent and in the last line of claim 11 what is meant by “a stack-gate structure” is unclear. It is because that both a “first doped region” and a “second doped region” are recited in claim 1 and what is meant by “a stack-gate structure” is not showed, for example, in Fig.8, the first and second gate segments would correspond, perhaps, 81 and 82, but they do not seem to stacked each other.

To review the Claim 14 and the specification, we know that the first sub-channel region is adjacent to the first doped region and the second sub-channel region is adjacent to the second doped region. Thus, the sentence “second sub-channel region being adjacent to said doped region” should be amended to “second sub-channel region being adjacent to said second doped region” and the sentence “and said first and said second gate segments form a stack-gate structure” should be deleted to make claim 14 clear.

Therefore, the rejection of Claim 1-25 can be traversed by foregoing amendment.

## CLAIM REJECTIONS- 35 U.S.C. SECTION 102

Claims 1-5 stand rejected under 35 U.S.C. 102(e) as being anticipated by Cheng et al.(USPN 6,465,308).

The Examiner is of the opinion that the cover figure of Cheng et al. shows all elements recited in claim 1, for example, a p type semiconductor bulk substrate 22, a first doped region of n<sup>+</sup> type 26, a second doped region of n<sup>+</sup> type 28, a channel 30 extends between 26 and 28, “the first gate segment” 38, and “first field oxide stripe” 24. The Examiner alleges that the “first part of said channel region” can be read on the part of the channel extending from drain 26 to the center of the channel and “third part of said channel region” can be read on the part of the channel extending from source 28 to the center of the channel with broadest reasonable interpretation of claim 1, and “first field oxide stripe” 24 is formed over the first part of the channel, and all parts of the “the first gate segment” 38 overlap the “first field oxide stripe” 24. But it is not real.

To view claim 1-4 and 9-11, Fig. 5A, Fig. 6A, and the specification of the present invention, the channel comprises a first part, a second part, and third part, wherein the first part and the second are the two ends of the channel respectively, and third part form a first continuous part of the channel and a second continuous part of the channel with the first part and the second part respectively. Thus, in the present invention, the first gate segment and the second gate segment are formed over the two ends of the channels (the first part, and the second part), and the first field oxide stripe is formed only over the third part of the channel. Besides, to view claim 1-2 and 9, Fig. 5A, Fig. 6A, and the specification of the present invention, only one end of the first gate segment overlaps the first field oxide stripe, not all parts of the first gate segment, and only one end of the second gate segment overlaps the first field oxide stripe, not all parts of the second gate segment. However, to view the cover figure and the

specification of Cheng et al., “the first field oxide stripe” 24 covers all parts of the channel 30, and all parts of “the first gate segment” 38 overlaps “the first field oxide stripe” 24. It makes the Cheng et al. different from the present invention. Thus, the structure of ESD protection device of the present invention is different from the structure of ESD protection device of Cheng et al., and the present invention isn’t disclosed by the Cheng et al. In the application, claim 1 has been combined with claim 2 and have been amended to depicted the above-mentioned feature to show what is the difference between the present invention and Cheng et al.. Therefore, according to above interpretation and amendment, the rejection of the claim 1-5 can be traversed.

#### **CLAIM REJECTIONS- 35 U.S.C. SECTION 103**

Claims 6-13 and 26 stand rejected under 35 U.S.C. 103(a) as being anticipated over Cheng et al. in view of Lin et al., 6,574,568.

The Examiner is of the opinion that Lin et al. has disclosed or taught the type of islands, the position of the islands, the second gate segment, the position of the second gate segment, and etc.

To view the Lin et al., although two type of islands (20a and 20b) are disclosed by Lin et al., but both of the island 20a and the island 20b have polysilicon-over-oxide. All difference between the island 20a and the island 20b is the thickness of the gate oxide. However, in claim 6 –8 and 26, there are two type of islands which are formed over the bulk and encircled by the first doped region; one type of islands has polysilicon-over-oxide and another type of islands have field-oxide. Thus, the Lin et al. only discloses the type of the islands has polysilicon-over-oxide, but doesn’t mention and teach another type of islands having field-oxide. Thus, according to above interpretation and amendment, the rejection of the claim 6-8 and 26 can be

traversed.

The Examiner is of the opinion that 40D recited in the Lin et al. is the “second gate segment” recited in claim 9-11 of the present invention. However, to view the figures and the specification of the Lin et al., 40D does not exist in any figures or any paragraph of the specification. Thus, it is impossible that the “second gate segment” recited in claim 9-11 is disclosed and taught by Lin et al. Thus, according to above interpretation and amendment, the rejection of the claim 9-11 can be traversed.

According to above interpretation and amendment for “CLAIM REJECTIONS- 35 U.S.C. SECTION 102”, the structure of ESD protection device of the present invention is different from the structure of ESD protection device of Cheng et al. It is because that the first field oxide stripe is formed only over the third part of the channel and only one end of the first gate segment overlaps the first field oxide stripe, but in Cheng et al, “the first field oxide stripe” 24 covers all parts of the channel 30, and all parts of “the first gate segment” 38 overlaps “the first field oxide stripe” 24. Therefore, what recited in claim 1 is not disclosed by Cheng et al and the structure of ESD protection device of the present invention can not be disclosed or taught even the Cheng et al. is combined with the Lin et al. According to above interpretation and dependency of claim 1, the rejection of the claim 6-13 can be traversed.

### **Conclusion**

In the light of the above amendments and remarks, Applicant respectfully submits that all pending claims as currently amended are in condition for allowance. Accordingly, reconsideration is respectfully requested.

Respectfully submitted,



Anthony R. Barkume  
Reg. No. 33,831  
Attorney for Applicant

Date: March 27, 2006

20 Gateway Lane  
Manorville, NY 11949  
tel (631) 259-9099  
fax (631) 980-7997  
[anthony@barkume.com](mailto:anthony@barkume.com)